

CROSS REFERENCE TO RELATED APPLICATIONS

ai This application is a continuation of U.S. Patent Application No. 09/346,660, filed July 1, 1999, which is a continuation of U.S. Patent Application No. 08/671,987, filed June 28, 1996 (now U.S. Pat. 5,942,443).

IN THE CLAIMS:

Please cancel claims 1-74 without prejudice and add NEW claims 75-85.

75. A method for reacting small primary particles from a primary stream also comprising larger particles, comprising the steps of:

conducting said primary stream into a laminar flow reaction channel;  
separately conducting a reagent stream comprising reagent particles into said reaction channel, such that said primary stream and said reagent stream flow in adjacent laminar streams;

allowing said primary particles to diffuse from said primary stream into said reagent stream, and to react with said reagent particles and form detectable product particles, thereby converting said reagent stream into a product stream and said primary stream into a residual primary stream;

conducting said residual primary stream out of said reaction channel;  
separately conducting said product stream out of said reaction channel; and  
detecting said product particles.

76. The method of claim 75 further comprising the step of analyzing said residual primary stream.

77. The method of claim 75 wherein said primary stream comprises components of a biochemical system, said small primary particles are native antigens, and said first reagent particles are first antibodies.

78. A method for reacting primary particles from a primary stream, comprising the steps of:

conducting said primary stream into a first laminar flow reaction channel;

separately conducting a first reagent stream comprising first reagent particles into said first laminar flow reaction channel, such that said primary stream and said first reagent stream flow in adjacent laminar streams;

allowing said primary particles to diffuse from said primary stream into said first reagent stream, and to react with said first reagent particles and form first product particles, thereby converting said first reagent stream into a first product stream and said primary stream into a residual primary stream;

thereafter conducting a first companion stream into said first laminar flow reaction channel such that said first product stream and said first companion stream flow in adjacent laminar streams thereby converting said first product stream into a diffused first product stream and said first companion stream into a diffused first companion stream;

conducting said residual primary stream out of said first reaction channel; and separately conducting said first diffused product stream out of said first reaction channel.

79. The method of claim 78 wherein said primary stream contains larger, non-diffusing particles in addition to said primary particles.

80. The method of claim 79 wherein said primary stream comprises components of a biochemical system, said primary particles are native antigens, and said first reagent particles are first antibodies.

81. The method of claim 78 wherein said step of detecting said first product particles comprises a method selected from the group consisting of optical, electrical, calorimetric and chemical detection.

82. The method of claim 78 wherein said step of detecting comprises absorbance, luminescence or fluorescence detection.

83. The method of claim 78 wherein said first reagent particles are immobilized on beads.